



7058

## HIGH-MU TWIN TRIODE

9-PIN MINIATURE TYPE

For use in mobile communications equipment operating from 6-cell storage-battery systems. Useful in phase-inverter, resistance-coupled-amplifier, and low-frequency-oscillator applications.

## GENERAL DATA

## Electrical:

Heater, for Unipotential Cathodes:

Voltage range. . . . . 12 to 15 . . . . . ac or dc volts

Current (Approx.) at

13.5 volts . . . . . 0.155 . . . . . amp

Direct Interelectrode Capacitances:<sup>0</sup>

	Unit No. 1	Unit No. 2	
Grid to plate. . . . .	1.7	1.7	$\mu\mu\text{f}$
Grid to cathode and heater . . .	1.6	1.6	$\mu\mu\text{f}$
Plate to cathode and heater. . .	0.46	0.34	$\mu\mu\text{f}$

Characteristics, Class A<sub>1</sub> Amplifier (Each Unit):

Heater Voltage . . . . . 13.5 volts

Plate Voltage. . . . . 250 volts

Grid Voltage . . . . . -2 volts

Amplification Factor . . . . . 100

Plate Resistance (Approx.) . . . . . 61000 ohms

Transconductance . . . . . 1650  $\mu\text{mhos}$ 

Plate Current. . . . . 1.25 ma

Grid Voltage (Approx.) for plate

 $\mu\text{a} = 10$  . . . . . -5 volts

## Mechanical:

Operating Position . . . . . Any

Maximum Overall Length . . . . . 2-3/16"

Maximum Seated Length. . . . . 1-15/16"

Length, Base Seat to Bulb Top

(Excluding tip). . . . . 1-9/16"  $\pm$  3/32"

Diameter . . . . . 0.750" to 0.875"

Dimensional Outline. . . . . See General Section

Bulb . . . . . T6-1/2

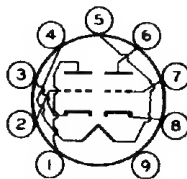
Base . . . . . Small-Button Noval 9-Pin (JETEC No. E9-1)

Basing Designation for BOTTOM VIEW . . . . . 9EP

Pin 1-Plate of  
Unit No. 2Pin 2-Grid of  
Unit No. 2Pin 3-Cathode of  
Unit No. 2

Pin 4-Heater

Pin 5-Heater

Pin 6-Plate of  
Unit No. 1Pin 7-Grid of  
Unit No. 1Pin 8-Cathode of  
Unit No. 1Pin 9-Internal  
Connection—  
Do Not Use<sup>0</sup>: See next page.

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### AMPLIFIER — Class A<sub>1</sub>

Values are for Each Unit

#### Maximum Ratings, Absolute Values:

PLATE VOLTAGE . . . . .	330 max.	volts
GRID VOLTAGE:		
Positive-bias value . . . . .	0 max.	volts
Negative-bias value . . . . .	55 max.	volts
PLATE DISSIPATION . . . . .	1 max.	watt
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	120 max.	volts
Heater positive with respect to cathode.	120 max.	volts

#### Typical Operation as Resistance-Coupled Amplifier (Each Unit):

See RESISTANCE-COUPLED AMPLIFIER CHART No. 25  
at front of Receiving Tube Section

#### Maximum Circuit Values:

Grid-Circuit Resistance:		
For fixed-bias operation. . . . .	0.5 max.	megohm
For cathode-bias operation. . . . .	1 max.	megohm

<sup>0</sup> Without external shield.

### CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

Values are for Each Unit Unless Otherwise Specified

	Note	Min.	Max.	
Heater Current. . . . .	1	0.143	0.167	amp
Amplification Factor. . . . .	1,2	85	115	
Plate Current . . . . .	1,2	0.9	1.75	ma
Transconductance. . . . .	1,2	1360	2100	μmhos
Reverse Grid Current (Total— both units) . . . . .	1,3	—	—1	μa
Heater-Cathode Leakage Current:				
Heater negative with respect to cathode. . . . .	1,4	—	20	μa
Heater positive with respect to cathode. . . . .	1,4	—	20	μa
Leakage Resistance:				
Between grid and all other electrodes of both units tied together . . . . .	1,5	50	—	megohms
Between plate and all other electrodes of both units tied together . . . . .	1,6	50	—	megohms

Note 1: With ac or dc heater volts = 13.5.

Note 2: With dc plate volts = 250, and dc grid volts = -2. Each unit tested separately. Electrodes of unit not under test are connected to ground.

Note 3: With dc plate volts = 250, grid resistor (megohms) = 1 common to both units, and dc grid volts = -2. Units are tested in parallel.



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Note 4: With 100 volts dc between heater and cathode.

Note 5: With grid 100 volts negative with respect to all other electrodes of both units tied together.

Note 6: With plate 300 volts negative with respect to all other electrodes of both units tied together.

### SPECIAL RATINGS & PERFORMANCE DATA

#### Heater-Cycling Life Performance:

This test is performed on a sample lot of tubes from each production run. A minimum of 2000 cycles of intermittent operation is applied under the following conditions: heater volts = 17 cycled one minute on and four minutes off, heater 135 volts negative with respect to cathode, and all other elements connected to ground. At the end of this test, tubes are checked for heater-cathode shorts and open circuits.

#### Low-Frequency Vibration Performance:

This test is performed on a sample lot of tubes from each production run under the following conditions: units connected in parallel, heater volts = 13.5, plate-supply volts = 250, grid volts = -2, plate load resistor (ohms) = 2000, and vibrational acceleration of 2.5 g at 25 cps. In this test, the rms output voltage must not exceed 150 millivolts.

#### 500-Hour Intermittent Life Performance:

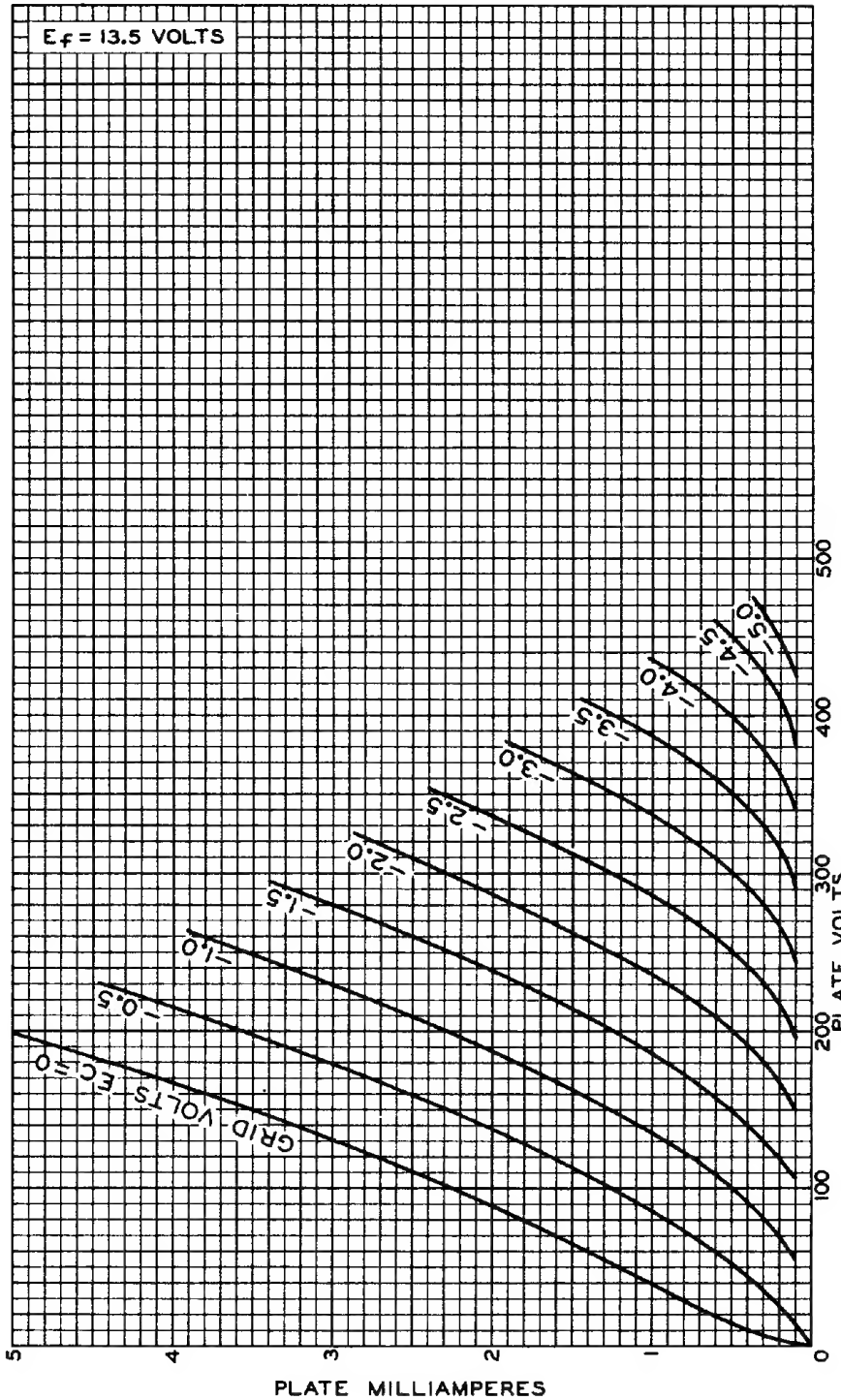
This test is performed on a sample lot of tubes from each production run to insure high quality of the individual tube and to guard against epidemic failures. Life testing is conducted under the following conditions: heater volts = 15 and maximum-rated plate dissipation.

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# AVERAGE PLATE CHARACTERISTICS EACH UNIT

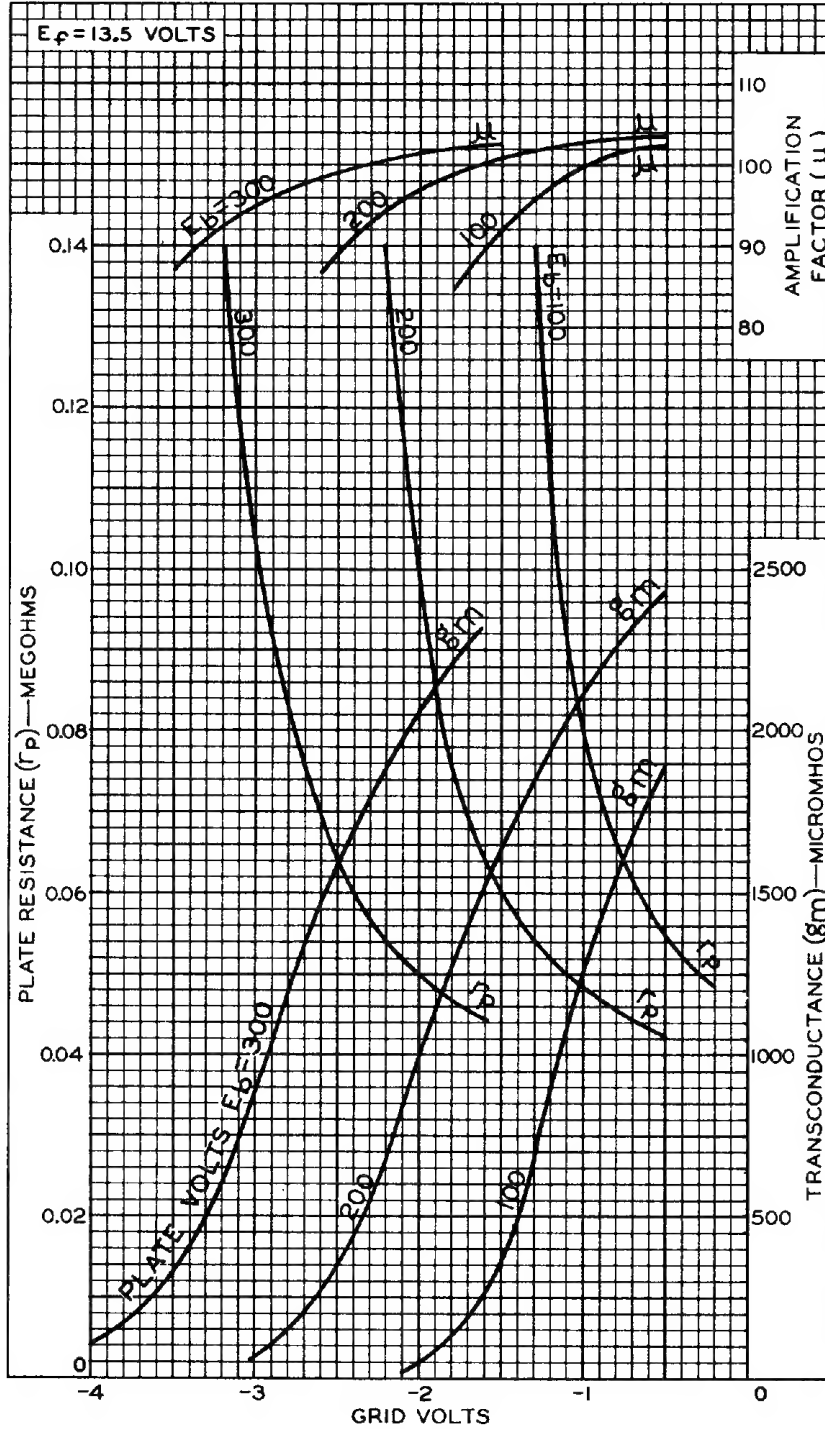




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AVERAGE CHARACTERISTICS  
EACH UNIT

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ELECTRON TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-9805